REMARKS

This is in full and timely response to the above-identified Office Action. Reexamination and reconsideration in light of the following remarks are respectfully requested.

Rejections Under 35 USC § 103

The rejection of claims 1-16, and 21-24 under 35 U.S.C. § 103(a) as being unpatentable over Trushell (U.S. Patent No. 5,552,665), in view of Kaduk et al. (U.S. Patent No. 3,875,455), is respectfully traversed.

In this rejection, it is admitted that Trushell fails to disclose a reflective layer in which a getter material is mixed with a UV reflective oxidic material. To overcome this acknowledged shortcoming, the Kaduk et al. reference is cited. The Kaduk et al. reference is relied on as disclosing an undercoat layer containing UV reflecting material of alumina particulate as in Trushell's device together with a getter material comprising a thermally decomposed getter precursor, MgO, for gettering action on the gas fill in the lamp. In support of this position the rejection cites column 3, lines 1-24, of Kaduk et al.

In order to establish a *prima facie* case of obviousness, it is necessary to show that the hypothetical person of ordinary skill would, without any knowledge of the claimed subject matter and without any inventive activity, be motivated to arrive at the claimed subject matter given the guidance of the cited references when each is fully considered as statutorily required.

There are three possible sources for motivation to combine references: the nature of the problem to be solved, the teachings of the prior art, and the knowledge of persons of ordinary skill in the art. *In re Rouffet*, 149 F.3d 1350, 1357, 47 USPQ2d 1453, 1457-58 (Fed. Cir. 1998) This case law, however, establishes that, even if the combination of the references may possibly teach every element of the claimed invention, without a motivation to combine, a rejection attempting to establish a *prima facie* case of obvious must be held improper. Additionally, the level of skill in the art cannot be relied upon to provide the suggestion to combine references. *Al-Site Corp. v. VSI Int'l Inc.*, 174 F.3d 1308, 50 USPQ2d 1161 (Fed. Cir. 1999).

The motivation to combine is alleged to be that the undercoat layer of Kaduk et al. will provide gettering action on the gas fill of the lamp.

Using a problem and solution analysis of the Trushell arrangement, it is noted that there is an absence of any suggestion that a getter needs to be added. In addition, the Trushell arrangement utilizes an undercoat which is an agglomerated particulate matter predominantly of gamma alumina having a primary cyrstallite size of less than 0.05μm. At column 3, lines 44-54, it is set forth that:

> Accordingly, it was a **surprise** to find that the **undercoat** according to the invention **increased lamp lumens** as compared to a lamp with the identical phosphor layer and no pre-coat. This was particularly surprising in view of the fact that (i) Applicants base **consists of gamma alumina**, which Arai teaches is ineffective for increasing light output, and (ii) the grain size according to the present invention is smaller than that which Arai teaches is effective. Specifically, the **particle size** of about 0.01 μm according to the one embodiment is about five times smaller than Arai'lower limit for effectiveness. (Emphasis added)

Clearly, it is the size and form of the crystalline material which are features of the Trushell arrangement. Indeed claim 1, of this reference recites (and therefore teaches the reader) that the ultraviolet reflecting material comprises an agglomerated particulate material of predominantly gamma alumina having a primary crystallite size of less than about 0.05 μm; and that the ultraviolet reflecting layer of predominantly gamma alumina has a weight/surface area of between about 0.15 mg/cm^2 and about 0.30 mg/cm^2.

Kaduk et al. on the other hand, discloses forming a MgO/Al_2O_3 mixture of about 99.1% MgO, 0.5% of Al_2O_3 and 0.4% Sb_2O_3. Since the Trushell layer is required to be predominantly Al_2O_3, it is submitted that there is an immediate problem in that the MgO containing layer of Kaduk et al. is disclosed as being predominantly formed of MgO and such as to contain only a small amount of Al_2O_3. An accurate transfer of the teachings of Kaduk et al. to Trushell could therefore be fully expected to reduce the amount of

Al_2O_3 in the Trushell undercoat to the point that the Trushell arrangement would be rendered inoperative for its intended purpose.

> "If the proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984)." M.P.E.P. § 2143.01.

Alternatively:

> "If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims prima facie obvious. *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959)." M.P.E.P. § 2143.02.

It is submitted that just arbitrarily adding MgO in the manner suggested in Kaduk et al. is very apt to produce detrimental results. That is to say, apart from reducing the amount of Al_2O_3 dramatically to the point of possible inoperability, issues arises as to how the particles of MgO will modify the effect of the gamma alumina of Trushell; what particle size should the MgO particles be in light of the size of the gamma alumina disclosed in Trushell; and is there any crystalline form that can be expected to have no detrimental effect on the unexpected benefits of the gamma alumina used in Trushell?

A further stumbling block to the proposed combination resides in that Kaduk et al. has both an undercoat and a reflective layer. The rejection fails to establish a reason why the hypothetical person of ordinary skill would not also consider a transfer of teachings of the reflective layer of Kaduk et al. to the arrangement of Trushell, and why the teachings of the reflective layer of Kaduk et al. are selectively ignored in favor of those pertaining to just the undercoat.

More specially column 4, lines 51-59 of Kaduk et al. it is disclosed that:

> While it is not fully understood how the invention functions to improve lamp performance, it is believed that the undercoat may have a gettering action on the gas fill in the lamp, and also improves reflectivity by **reflecting some of the light** which otherwise would escape through **the TiO_2 reflector coating** (which is not a perfect reflector), and also tends to reduce mercury deposition in the phosphor and on the **TiO_2 reflector coating**. (Emphasis added)

Thus, it is suggested that it is a combination of the TiO_2 layer (which reflects light) and the undercoat (which also reflects some light) that must be considered as being suggested by Kaduk et al. arrangement since it is believed to be the basis of the improved reflectivity provided. Thus, a transfer of teachings from Kaduk et al. to Trushell without the inclusion of the TiO_2 layer would amount to ignoring clear teaching that there is a combination effect which should be considered and that the transfer would not be made without clear teachings/suggestions to omit the TiO_2 layer.

Nevertheless, it is clear that a transfer of teachings of the undercoat of Kaduk et al. to Trushell, as per the alleged motivation for combination, would basically obliterate the Trushell undercoat and basically convert it from predominantly Al_2O_3 to predominantly MgO.

Further, as noted above, the guidance of Kaduk et al. would induce the hypothetical person of ordinary skill to strongly consider the TiO_2 layer as part and parcel of the teachings of Kaduk et al. and thus demand that the TiO_2 layer be transferred along with the teachings of the getter material. However, claim 1 is set forth in partially closed format and is therefore such that the introduction of the TiO_2 layer would violate the requirement that anything in addition to the recited materials be such as to not have any material effect on the novel characteristics of the claimed invention. Clearly, the presence of the TiO_2 layer and the reflective properties associated therewith would materially effect the properties of the electric lamp which is being claimed. The TiO_2 layer must therefore be excluded from the claimed combination.

This exclusion of course renders it impossible for an accurate transfer of teachings from Kaduk et al. to those of the Trushell reference.

An additional inhibition to combination resides in that Kaduk et al. pertains to an aperture-type fluorescent reprographic lamp wherein an elongate clear area or aperture 13 is scraped out through the various layers which are coated onto the interior of the tube. Attention is called to column 3, lines 46-56, wherein it is set forth that:

> The phosphor **12**, which may consist of zinc orthosilicate Zn_2SiO_4, is next applied as a suspension in a solution of nitrocellulose in butyl acetate which is drawn up into the bulb and allowed to drain out. At this stage, the **clear area of aperture 13 is scraped out in the desired width**. The scraping removes the relatively thick powdery reflective layer **10** of TiO_2, the undercoat **11**, and the phosphor layer **12**, but the clear protective layer **9** of TiO_2 which resulted from the hydrolysis of tetrabutyl titanate is very adherent and is not affected. Examples of other phosphors that have been found suitable are MgAl gallate, or cool white halophosphate; many other phosphors can be used. The bulb is then lehred at a temperature of about 550° to 600°C for 3 to 5 minutes to decompose and drive out the binder of the phosphor **12** and its undercoat **11**. Instead of applying the coatings over the entire periphery and then scraping, **an alternative method** is to **introduce a pool of suspension** of the desired coating in a horizontally supported tube which is **then rocked back and fourth** to achieve the desired angular width of reflective coating, followed by drying and lehring, as taught in U.S. Pat. No. 2,892,440-Fulton et al. (Emphasis added)

It will thus be appreciated that it would be also necessary to consider forming an aperture of the nature used in Kaduk et al. in the Trushell arrangement if the teachings of Kaduk et al. were to be accurately transferred to those of Trushell. Applicant is aware that *In re Keller* (642 F.2d 413, 208 USPQ 871 (CCPA 1981)) states that "the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference, nor is it that the claimed

invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art."

Therefore, inasmuch as Trushell is not directed to an aperture-type fluorescent reprographic type lamp, it is submitted that the hypothetical person of ordinary skill would not be motivated, at least for this reason, to consider Kaduk et al. as containing teachings which may be applicable to those found in Trushell.

Accordingly, it is respectfully submitted that the references cited in this rejection fail to provide the hypothetical person of ordinary skill with teachings that would enable a *prima facie* case of obviousness to be established.

Conclusion

It is respectfully submitted that the claims as they stand before the USPTO are patentable over the art which is cited. Favorable reconsideration and allowance of this application is courteously solicited.

Respectfully submitted,

Date September 2, 2004

By _____

Telephone: (202) 672-5485
Facsimile: (202) 672-5399

William T. Ellis
Registration No. 26,874

Keith J. Townsend
Registration No. 40,358